**MEETING SUMMARY**
**WATER RESOURCES ADVISORY COMMISSION**
**MINIMUM FLOWS AND LEVELS FOR BISCAYNE BAY ISSUES WORKSHOP**
**Seminar Room, Rosentiel School of Marine and Atmospheric Science**
**4600 Rickenbacker Causeway, Miami, FL**
**Wednesday, August 25, 2004**
**8:30 a.m. - 12:00 p.m.**

**Attendees:**

**Members:**

There were no WRAC members present.

**Alternates:**

SamanthaWhitcraft

**Interested Parties:**

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| Steve Blair | Laura Feakes | D. Michael Parrish |
| Courtney Bogle | Jamie Furgang | Raul Patterson |
| Larry Brand | Greg Graves | Patrick Pitts |
| Scott Brown | Cynthia Guerra | Joe Serafy |
| Valentina Caccia | Peter Harlem | Patricia Strayer |
| Marsha Colbert | Libby Johns | |
| George Cohen | Joan Lawrence | |
| Rick Clark | Diego Lirman | |
| Marella Crane | Susan Markley | |
| Greg DeAngelo | Jack Meeder | |

**SFWMD Staff:**

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| Rick Alleman | Murray Miller | Cecile Ross |
| Scott Burns | Dean Powell | Rick Smith |
| Deb Drum | John Mulliken | Trisha Stone |
| Jose Fuentes | Michelle Pearcy | |

1. Introduction and Recap: John Mulliken, Dep. Dir., Water Supply Dept.; Dean Powell, Dir, Watershed Management Dept., SFWMD:

John Mulliken welcomed and asked participants to introduce themselves. Dean Powell indicated this meeting would address questions from the 6/25/04 WRAC Workshop. He summarized that workshop and provided a timetable for the South-Central Biscayne Bay MFL, due for rulemaking in December 2004. MFLs for the remaining areas of the bay are due next year. He explained SFWMD recommendations for addressing biology, salinity and hydrology issues and that today's workshop is to provide participants an understanding of the MFL development process and proposed indicator species for monitoring.

2. Follow-up issue: What is the baseline? Joel VanArman, Chief Scientist, Planning and Development Div., SFWMD:

Joel VanArman explained "baseline condition" as used in establishing MFL criteria, provided examples, and described considerations and exclusions defined in Florida Statutes.

Question: How is baseline information applied and what will it be compared to? How is "significant harm" defined? Answer: It is defined in SFWMD Rules (Ch. 40-E-8, F.A.C.) as "an adverse effect on resources that requires more than two years for recovery to occur." Dean Powell explained the statutory requirements and approach SFWMD will take regarding prevention and recovery. John Mulliken explained that we have not yet defined aspects of the resource that will be used to define "significant harm" but there will be a definition as the process moves forward.

Question: Many believe the bay has already been harmed. Can the baseline be changed once a restoration plan is defined and underway? Answer: Joel Van Arman said yes, and cited the Loxahatchee River as an example. Through baseline analyses, as part of the MFL criteria, proposed flow rates were developed that would restore an area of the Loxahatchee River to fresh water. As this freshwater resource improves over time, the baseline condition will change and the MFL will be modified to protect the restored area. This approach was contemplated in the Florida Statutes.

Question: If the baseline is adjusted, what is the end point – what will the bay look like after restoration? Answer: Joel VanArman responded that as strategies are implemented improvements in bay ecology are likely and therefore the baseline will keep moving up. The desired end point should be defined as the final product of long-term bay management/restoration efforts, including CERP. This end point may or may not be what the historical system was.

Comment: The MFL criteria may be inconsistent with the performance measures and objectives of the Biscayne Bay Coastal Wetlands CERP project; example: restoration of oyster productivity in the bay. Response: The goal of CERP is the future restoration of the resources. MFL criteria are intended to protect existing resources from significant harm. CERP uses a "future baseline" concept, which is the "future without the project" condition, which is different than "current baseline" condition used for establishment of MFL criteria. Dean Powell commented that given changes expected from implementation of CERP projects, the MFL would be changed as CERP projects are implemented (e.g. 2016).

Comment: Most agree the baseline will change but if "significant harm" increases, then it may not be possible to achieve restoration, e.g. approval of large increases for the FKAA could increase impacts on the bay.

3. Follow-up Issues: Describe the process used to select indicator organisms and recommend shoal grass (halodule wrightii). How does shoal grass protect other species? Rick Alleman, Lead Environmental Scientist, Coastal Ecosystems Div., SFWMD:

Rick Alleman discussed the screening and selection of indicator species in south central Biscayne Bay. Forty-two species were investigated; at least 8 are in this area of the bay.

Question: Is the suggestion by Steve Blair at the June meeting that it would be better to use a suite of fish species as the indicators going to be taken? Related question was asked about monitoring a suite of seagrasses. Shoalgrass and wigeon grass (Ruppia maratima) are at opposite ends of salinity tolerance so it would be a good idea to monitor both. Another comment was made that shoal grass responds more to nutrients than salinity, so it is irresponsible to recommend that as the primary indicator. Response: Need is to select species best related to the MFL and recovery issues.

Comment: Statutory guidelines for the MFL process and the reality of bay dynamics indicate that there is not going to be just one small set of species that will reflect changes in flow volume, distribution, etc. There are too many other variables so the best approach is to start with a salinity envelope (the District is recommending this) but not have that be the definitive yes or no. There is a growing body of data on nutrient effects, recruitment, etc. Need to take an ecosystems approach to this. Response: Dean Powell replied that we don't want to see the bay become a monoculture of turtle grass (thalassia testudinum). Another Commenter agreed but there is a lot of concern that the District will use just one species and that will be it. Commenter responded that there is agreement the MFL needs to be set and the process needs to move forward. Comment: There is new data addressing the effects of nutrients on shoal grass.

Question: How will "significant harm" be determined by using seagrass? Answer: Data from monitoring of seagrasses, salinities and salinity requirements, and flow data will be used to develop flow regimes/flow targets that will prevent the bay from becoming a monoculture of turtle grass. The district will analyze flow, duration, and frequency data to form the basis of rule development.

Questions asked and comments were made about flows, canal flows, structures and projects. Response: John Mulliken said that we're not there yet; we have to define and agree on resource protection needs – a suite of species for indicators, salinity criteria and a monitoring system. Then we'll be in better shape to establish freshwater inflow needs.
Comment made about the use of pink shrimp as an indicator and when CERP projects would be completed. Response: Pink shrimp are an important component of the ecosystem but are not particularly sensitive to salinity conditions in the Bay. Dean Powell said as the CERP projects are implemented the MFL may change, but completion of the Biscayne Bay CERP project is approximately 12 years out. Joel Van Arman said that the monitoring program will focus on groundwater stages, flow rates to the bay, salinity requirements and biological indicators.

4. Follow-up Issues: How were fish evaluated and how do eastern and western shorelines compare? Where will significant harm be determined spatially? Murray Miller, Sr. Environmental Scientist, Planning and Development Div., SFWMD
Murray Miller, SFWMD, discussed the evaluation of fish species as indicators, how the eastern and western shorelines compared, and the methods for determining geographic areas of the bay that have been significantly harmed. There were no questions or comments.

5. Simulating salinity and flows: Strengths and weaknesses in data and models - Rick Alleman, Lead Environmental Scientist, Coastal Ecosystems Div.; SFWMD.
Rick Alleman discussed rainfall, bay water budget and salinities. SFWMD staff evaluated rainfall data for the period 1965-2000, which tended to be drier years. The salinity range is generally 20-40 parts per thousand (ppt). The district is using best available tools to analyze effects of drought and hypersaline conditions.

Question: What about rising sea level and the surface/groundwater hydrology of the bay. Answer: The models account for rising sea levels, but sea level rise could cause a reduction of groundwater discharge to the bay.

Question: Is evapotranspiration in the model and do the runs show hypersaline conditions in dry years? Answer: Yes to both, but the model did not show short-term extreme episodes. Question: does the model show if there would be sufficient water in the bay? Answer: There are impacts but freshwater inputs appear to be sufficient at 100 acre feet/day. Comment: Dr. Wang's model shows lower freshwater flows to the bay. Question: can we can reduce flows to this level and still have a good system? Response: The conditions used for this series of model runs are actually worse than a 1-in-10-year drought. Question: How will we know that the model used is any good? Answer: It has been verified and calibrated. Comment: models should be peer reviewed and compared once evaluated. Ecological impacts related to freshwater flows are not the limit and full scope of the impact of under or overestimating freshwater flows to the bay. Freshwater flows also have an impact on consumptive uses and the success of CERP projects.

Comment: Dr. Wang's model may be better in this application, but we should be striving for progress, not perfection. Don't get hung up on "what's wrong with this model"

Comment: there is a salinity gradient that should be maintained and the groundwater flows are very important for maintaining that gradient. There is consensus that we want to maintain a diversity of seagrass species and that we need to optimize the number and distribution of seagrass species. Based on work in Florida Bay, we've seen that a mix of seagrasses provides more habitat for a diversity of fish species.

Comment: It appears that the District jumped to a conclusion that greater than 1-in-10-year flows are sufficient to protect Biscayne Bay resources. Linked to what? Answer: The last slide shows diversity, functionality, distribution and how the functionality supports other species. Comment: The term "supports" is subjected to a wide variety of interpretations. To what degree are these communities "healthy" or "balanced"? Comment: Again, even in a bad drought, groundwater flows support species. We want to protect sufficient flows but are still discussing how to measure it. Even in worst case scenario there are species in need of protection. A1979 study recommended against further reductions of canal flows to the bay. Setting the MFLs won't be perfect but it is

critical to start the process moving immediately. There was a decision made in the beginning that we did not need a 3-D model.

Comment: Not aware that the existing operating system supports a varitety of species. What is the meaning of the statement that this model was verified, not calibrated? Response: It is important for everyone to know that the model runs simulated flows into the bay and salinity gradients in the bay.

6. Next Steps and Wrap Up, John Mulliken, Deputy Director, Water Supply Dept., SFMWD. John Mulliken said SFWMD staff has compiled and analyzed data, reviewed it and presented it to the public. There appears to be an emerging consensus. The District will develop a draft MFL proposal, send it out for review, do a more detailed analysis of operations, and include the results in draft rule language.

**Important Note:** A majority of participants at this workshop expressed support for using a suite of species for monitoring impacts to the bay, not just seagrasses.

**Important Note:** The U.S. Fish and Wildlife Service and the National Park Service agreed with Dade County that the MFL process needs to move forward and the MFL needs to be established.

Summary of Next Steps:
1. MFL criteria to be developed based on "significant harm" standard.
2. Recognize that the current hydrologic regime is the defining condition and is the baseline.
3. Recognize changed conditions.
4. Short-term variations in salinity don't seem to be a problem but spatial distribution of salinity and long-term changes are issues.
5. SFWMD staff will get something out to everyone via e-mail and ask for quick response.

Comment: people are concerned that setting the MFL will also establish a "reservation". Any thought about the water budget and how it will change the bay? Response: Significant flow from outside the basin impacts the bay, so anything occurring in the watershed that changes the water budget could change the ecology of the bay and would be of concern.

Question: Would the MFL process "trump" the CERP process? Answer: The MFL section of the statute specifically addresses consumptive use water withdrawals and significant harm to water resources. The CERP process us focused on restoration but requires us to evaluate MFL criteria and coordinate so there are not conflicts.

Question: Has this model been run with the D13R4 Scenarios? Answer: Yes.
Question: Did it show decreased flows? Answer: New model runs show that there are increased flows in some areas of the bay and decreases in others. People can visit the "CERP Zone" website to get specific answers.

Comment: Confused about "South Central" as the defined geographic area. Response: We were not going to propose that. Q: So what is the defined geographic area? A: The proposed area extends from Chicken Key (C-100 Canal Basin) on the north, to Mangrove Point on the south. The MFL is to protect the resource from significant harm. We'll establish duration, flows and return frequencies for that area.

Comment: in the CERP PDT meetings we're talking about nearshore zones and Dr. Joan Browder (NFMS, NOAA) has the numbers.

Comment: Presentations seem to argue for single-species approach. Need to reassess the data, especially fish species. Need more effort to look at diversity of fish species and frequency of occurrence. There is a great deal of data out there.

Question: Will the MFL will be set at the existing levels? Answer: We've not put a proposal on the table yet. There have been a number of possible solutions identified and those are being considered.

Comment: We're leaving this room with the understanding that District is willing to look at a full suite of species. Biscayne National Park staff have provided a position paper based on Dr. Joe Seraphy's (NOAA) work. There is some support for readdressing potential indicator species and we want to hear the District response. Response: We had issued a last call for data and information but will certainly consider this proposal.

Clarification: Dr. Seraphy's work basically does not reveal any new data. Response: Yes but there is new data District has not yet seen.

Question: How much importance is being placed on MFL establishment by the SFWMD Governing Board? Answer: A great deal of importance is being placed on completing MFLs throughout the state. The SFWMD is asking a lot from a small group of people to accelerate and complete establishment of the MFLs.

Dean Powell thanked everyone for a great meeting.

7. Meeting adjourned.

Rick Smith
WRAC Facilitator
Governing Board and Executive Services, SFWMD